Infiltration of saline solution around the saphenous vein facilitates stripping for coronary bypass surgery

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The use of the mayo stripper to harvest the long saphenous vein has been shown to improve morbidity from leg wound incisions. Many studies[1,2] have shown that this technique is easy, gives good quality veins for grafting, and is associated with minimal wound problems. We describe this maneuver of saline solution infiltration around the saphenous vein, which facilitates its stripping for coronary bypass surgery.

TECHNIQUE

Administration of saline solution or anesthetic agent into a surgical wound is a well-described technique.[3] We applied this maneuver for stripping the long saphenous vein for coronary bypass surgery.

The surgeon stands on the side of the donor leg with the patient in a supine position; the patient's hip is externally rotated 150°. A 2-cm incision is made over the vein, 3 cm below and lateral to the pubic symphysis, and the vein is dissected to its adventitia. Saline solution is infused just under the skin through the fat above the vein using a 17-guage needle (Figure 1, *A*). Gentle massage is applied externally, dispersing the saline solution into the tissue surrounding the saphenous vein. Saline solution is forced between the fat cells, creating a superhydrated cell matrix that protects the integrity of the tissue and vein and also facilitates vein harvesting and sliding of the stripper; saline solution keeps the vein well hydrated, and it dilutes any debris or clots generated by using this technique and facilities washout before wound closure. Saline solution infiltration also makes dissection and creation of a tunnel behind the vein very easy. After tying and dividing the proximal end of the vein, a tunnel is created behind the vein using a clip or digital dissection.

The vein is placed under traction, then the stripper is slid along the vein up to the level of first side branch (Figure 1, *B*). Another 1-cm longitudinal incision is made above the side branch. The vein is delivered to skin, and the distal end of the side branch is clipped and cut. The procedure is repeated until the required length of vein is achieved. The vein is tied and divided. Then the proximal ends of the side branches are tied.

METHODS AND RESULTS

We conducted a randomized control trial on 40 diabetic patients. Twenty patients (18 men, 2 women; mean age 66; 5 with insulin-dependent diabetes mellitus, 11 with non-insulin-dependent diabetes mellitus, and 4 with diet-controlled diabetes, mellitus without medications) underwent stripping vein harvesting (SVH), and 20 patients (14 men, 6 women; mean age 61; 9 with insulin-dependent diabetes mellitus, 11 with non-insulin-dependent diabetes mellitus, and 0 with diet-controlled diabetes, mellitus without medications) underwent open vein harvesting (OVH). Pain score was much better in SVH group (Figure 2). Six patients in the OVH group developed wound problems (3 with serous discharge, 3 with infected discharge) versus 1 patient in the SVH group who developed hematoma but required no treatment. Two patients in the OVH group stayed longer than 15 days due to leg wound infection. Harvest time was 0.83 cm/min in SVH group versus 0.93 cm/min in the OVH group ($P = .03$). Histologic analysis did not show any intimal injury to the veins in the SVH group. There was no significant difference in contractile response to noradrenaline bath between SVH and OVH groups.

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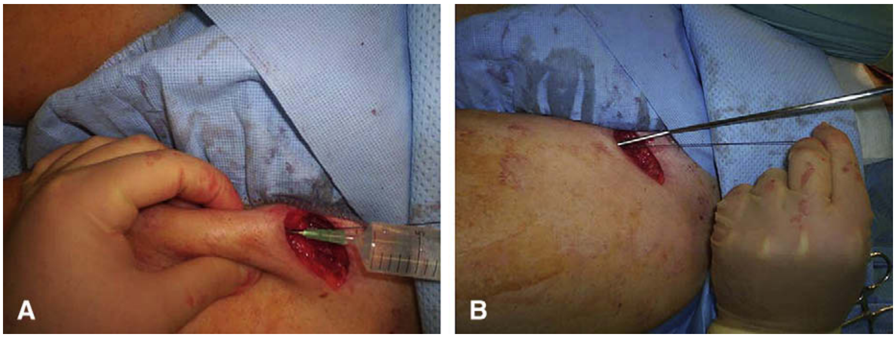

FIGURE 1. A, Infiltration of saline solution. B, Sliding the stripper over the vein.

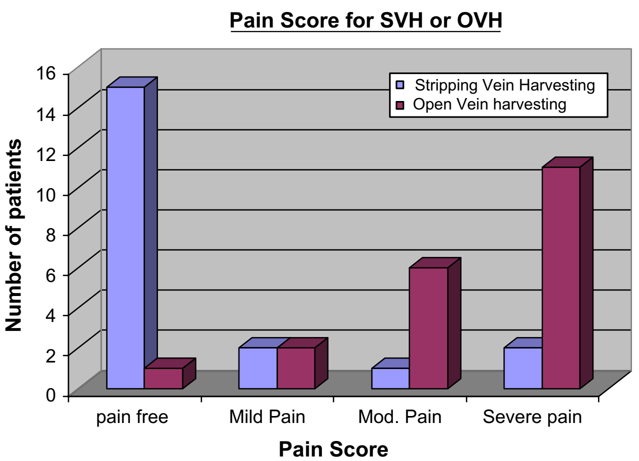

FIGURE 2. Pain score is much higher in the open vein harvesting technique group.

DISCUSSION

Harvesting the long saphenous vein by means of multiple small incisions and use of the mayo strippers is a well-recommended technique.[2] We found that SVH was associated with less wound complications and wound pain, required shorter length of hospital stay, and did not add any cost to the procedure. It did not prolong the overall operative time nor compromise the vein quality both morphologically and functionally. We found that this maneuver facilitated vein dissection. It kept the vein very well hydrated and protected its integrity. It facilitated removal of the debris and clots generated after sliding the stripper. Further research is required to evaluate the potential benefits of this maneuver.

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Electromagnetic interaction between an axial left ventricular assist device and an implantable cardioverter defibrillator

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As the prevalence of advanced heart failure continues to increase, implantation of the left ventricular assist device (LVAD) has become an excellent bridge to cardiac transplantation, recovery, or other future alternative therapies.[1,2] There is some evidence that LVAD therapy itself promotes new onset of ventricular arrhythmias in this patient group.[1] Implantation of an implantable cardioverter–defibrillator (ICD) is one treatment choice. There is little information concerning device–device interaction between the LVAD and ICD.[2]

This report describes the case of a patient with intraoperative interaction between the LVAD and a newly implanted left-sided ICD, which was ultimately solved by right-sided reimplantation.

CLINICAL SUMMARY

A 54-year-old man was admitted to our institution in November 2006 with medically unresponsive end-stage heart failure resulting from dilated cardiomyopathy. He was in cardiogenic shock with a left ventricular ejection fraction of 15% and received extracorporeal membrane oxygenatation for 1 week. Implantation of a Thoratec HeartMate II LVAD (Thoratec Corporation, Pleasanton, Calif) with additional tricuspid valve annuloplasty was performed 10 days later. The LVAD inflow was positioned at the left ventricular apex, the outflow in the ascending aorta, and the device itself in the left upper part of the abdomen. His postoperative course was prolonged by respiratory insufficiency and intensive polyneuropathy. Finally, 100 days postoperatively, the patient was transferred to a neurologic and cardiac rehabilitation unit. After 6 weeks, the patient could

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